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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/539,465

05/02/2006

Peter Wraight

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6409

23718

7590

01/22/2009

SCHLUMBERGER OILFIELD SERVICES

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EXAMINER

FRANK, RODNEY T

ART UNIT

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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/539,465	<b>Applicant(s)</b> WRAIGHT, PETER	
	<b>Examiner</b> RODNEY T. FRANK	<b>Art Unit</b> 2856	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 24 October 2008.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,2,7-9 and 11 is/are rejected.
- 7) ☒ Claim(s) 3-6,10 and 12-18 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 02 May 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |                                                                                      |                                                                   |
|--------------------------------------------------------------------------------------|-------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____                                                          | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1 and 11 are rejected under 35 U.S.C. 102(b) as being anticipated by Hopkinson et al. (U.S. Patent Number 3,691,378; hereinafter referred to as Hopkinson). Hopkinson discloses that methods and apparatus are disclosed for obtaining simultaneously a well log of the macroscopic thermal neutron cross-section (Neutron Lifetime Log) of formations adjacent a well bore and logs of the capture gamma rays, epithermal neutrons and thermal neutrons returning to a well bore as a result of irradiating the formations adjacent the well bore with pulses of neutrons. The thermal and epithermal neutron logs are obtained by separating the signal from a single detector into two time-dependent groups.

Methods and means are also disclosed for combining the capture gamma ray log with the thermal neutron log to obtain a log indicating the salinity of the fluids contained within said formations. Methods and means are also disclosed for combining the epithermal neutron log with the thermal neutron log to obtain a log related to the macroscopic thermal neutron cross-section of the formations. Either or both of these derived logs may be obtained simultaneously with the first suite of logs.

The preferred embodiment of the apparatus disclosed herein includes a pulsed source of 14-mev neutrons, a gamma ray detector, and a neutron detector sensitive to both thermal and epithermal neutrons in the subsurface instrument. Surface apparatus includes the appropriate gating circuits and ancillary circuits whereby the gamma rays detected while the neutron source is quiescent are used to form three signals corresponding to the gamma rays detected in three time periods. Similarly, the surface apparatus includes gating and ancillary circuits to separate the detected neutrons into two time groups (Please see the abstract).

3. With regard to claim 1, Hopkinson discloses and illustrates in figure 1 a method for determining a downhole parameter in a drilling environment, comprising activating, by an activation device (20), drilling fluid flowing past the activation device; turning off the activation device (20) for a time sufficient to create an unactivated slug of drilling fluid (see column 1, lines 59 through 66); detecting the unactivated drilling fluid slug at a known distance (d) from the activation device (20); and determining a time-of-flight (t) for the unactivated drilling fluid slug to travel the distance (d) (see column 11, lines 8 through 48).

With respect to claim 11, Hopkinson discloses and illustrates in figure 1 a tool for determining a downhole parameter in a drilling environment, wherein the tool is adapted to be placed in a drill string (18) and wherein the tool comprises a activation device (20) and a gamma ray detector (22) separated along a drill string (18) axis thereof by a distance (d), the tool further comprising control circuitry to turn off the activation device (20) for a time sufficient to create an unactivated slug of drilling fluid flowing past the

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tool (see column 1, lines 59 through 66); and processing means (28), coupled to the gamma ray detector (22), for determining when the unactivated slug of drilling fluid flows past the gamma ray detector (22).

4. Claims 1 and 7 are rejected under 35 U.S.C. 102(b) as being anticipated by McKeon et al. (U.S. Patent Number 5,219,518; hereinafter referred to as McKeon). McKeon discloses a nuclear spectroscopy method and apparatus for obtaining qualitative and quantitative information related to water flow, comprising the steps of: (1) irradiating the water flow with a source of neutrons of sufficient energy to interact with oxygen atoms in the water according to the activation reaction  $O^{16}(n,p)N^{16}$ ; (2) detecting and counting, with at least at a detector, the gamma rays emitted during disintegration of  $N^{16}$ ; (3) making a plot of the counts versus time; and (4) deriving from said plot information related to said water flow.

The irradiating is advantageously interrupted after a given period of time, and is preferably immediately followed by the detection. The water flow velocity "V" is calculated from the formula  $V=d/t$ , where "d" is the distance between the source and the detector(s), and "t" is the time period between the irradiation and the time corresponding to a characteristic on said plot, representative of the water flow and departing from the  $N^{16}$  exponential decay curve. The characteristic takes different forms on the plot according to the duration of the irradiation (Please see the abstract).

With regard to claim 1, McKeon discloses and illustrates in figure 1 a method for determining a downhole parameter in a drilling environment, comprising activating, by an activation device (22), drilling fluid flowing past the activation device; turning off the

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activation device for a time sufficient to create an unactivated slug of drilling fluid (see column 4, lines 1 through 64); detecting the unactivated drilling fluid slug at a known distance (d) from the activation device (20); and determining a time-of-flight (t) for the unactivated drilling fluid slug to travel the distance (d) (see column 4, lines 1 through 64).

With respect to claim 7, figure 1 shows a logging tool that is used for logging while drilling.

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 2, 8, and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over McKeon et al.

7. With respect to claim 2, while not specifically disclosed as utilizing the time of flight for determining velocity, column 4, lines 42 through 51 disclose that the velocity is a function of the distance between the source and a time measurement. Since the time measurement is related to the distance, then this relationship is seen as an equivalent to a time of flight measurement as there is a distance versus time measurement that is made in order to make the characteristic measurements with the system. Therefore, one of ordinary skill in the art at the time of the invention would be able to ascertain a time of flight measurement based upon the distance versus time measurements taken.

With respect to claim 8, while it is not specifically disclosed in which direction the fluid in the system is flowing, as the tool operates, fluid is moved about the borehole and cycled about, and thus some of the fluid will eventually flow in a direction toward the surface. One of ordinary skill in the art at the time of the invention would recognize that as the fluids are circulated during the drilling operation, then some of those fluids would also flow towards the surface.

With respect to claim 9, while not explicitly disclosed as such, figure 1 discloses detectors located at some distance above the generator. Since the distance "d" is a variable, then any distance would represent a distance "d", and thus one of ordinary skill in the art would recognize that figure 1 would indicate a distance "d", though not explicitly disclosed, since the detector is some distance from the generator.

#### ***Allowable Subject Matter***

8. Claims 3-6, 10, and 12-18 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

#### ***Response to Arguments***

9. Applicant's arguments, see the response, filed 24 October 2008, with respect to the rejection(s) of claim(s) 1-18 under 35 USC 102, and 103 have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Hopkinson et al. and McKeon et al.

#### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to RODNEY T. FRANK whose telephone number is (571)272-2193. The examiner can normally be reached on M-F 9-5:30 p.m. EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hezron E. Williams can be reached on (571) 272-2208. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/R. T. F./  
Examiner, Art Unit 2856  
January 22, 2009  
/Hezron Williams/  
Supervisory Patent Examiner, Art Unit 2856



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